

REMARKS

This amendment responds to the Final Office Action mailed May 18, 2007. In the office action the Examiner:

- rejected claims 1, 3-6, 13, 15-18, 25, 27-30 and 37-48 under 35 U.S.C. 112, first paragraph;
- rejected claims 1, 3-6, 13-18 and 37-48 under 35 U.S.C. 101 as being directed to non-statutory subject matter;
- rejected claims 1, 3-4, 6, 13, 15, 16, 18, 25, 27-28, 30, 38, 40, 42, 44, 46, and 48 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 5,915,251);
- rejected claims 5, 17 and 29 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Lewak et al. (US 6,826,566); and
- rejected claims 37, 39, 41, 43, 45 and 47 under 35 U.S.C. 103(a) as being unpatentable over Matsuda (US 2003/0225779) in view of Burrows (US 5,915,251) and further in view of Beavin et al. (US 6,571,233).

After entry of this amendment, the pending claims are: claims 1, 3-6, 13, 15-18, 25, 27-30, and 37-48 (27 claims, 3 of which are independent claims).

Claim Amendments

Independent claims 1, 13 and 25 have been amended to clarify that after the query has been entered and the document index has been searched, a tangible result is returned (“returning a result in accordance with at least a subset of the identified documents”). These amendments are supported by at least paragraph 0027 (“A list of documents that satisfy the query is presented to the user via the web server 112.”) and Fig. 1.

Rejection of Claims Under 35 U.S.C. § 112

The Examiner has rejected claims 1, 3-6, 13, 15-18, 25, 27-30 and 37-48 on the basis that the specification does not contain a written description sufficient indicate that the inventor(s) had possession of the claimed invention. Specifically, the Examiner points to the phrase “in the expression includes information indicative of an integral portion of a logarithm of the boundary number,” which is recited in each of the independent claims.

Support for the claim language cited by the Examiner can be found in the “Indexing Operations” section of the specification. In particular, the use of a logarithm to determine the “characteristic” of a boundary number is described in paragraph [0028].

Additional information about the number 727.1 is also recorded in the document index 110 as a numerical index term. **This information includes but is not limited to the characteristic of the number** and its digits, which are meaningful for a fixed number base (e.g., 10, 100 or any other suitable base) in which indexing is performed. **The “characteristic” of a number is defined as the integral part of the logarithm of the number taken in the fixed base.** (emphasis added)

This “characteristic,” as described in paragraph [0028], is the integral part (i.e., integer component) of the logarithm of the boundary number. In the example given in the specification, the boundary number is 727.1 and the logarithm (base 10) of the boundary number is 2.86. Thus, the integral part (i.e., integer component) of the logarithm of the boundary number is 2. As the specification states at the end of paragraph [0028], “In the example above the number 727.1 (base 10) has characteristic 2...”

From the words of the specification, it would be clear to one having ordinary skill in the relevant art that the inventor(s) possessed the claimed invention. MPEP §2111.01 states that “[t]he words of a claim must be given their ‘plain meaning’ unless such meaning is inconsistent with the specification.” “Integral” is defined in the American Heritage College Dictionary, Third Edition (1997) as “3. *Math.* a. Expressed or expressible as or in terms of integers.” Thus, it would be clear to one having ordinary skill in the relevant art that the logarithm (base 10) of a number x can be expressed as a real number in the form $y.z$ and further that the “integral part” of $y.z$ is the integer y . The use of this “integral part” of the logarithm of the boundary number (referred to throughout the specification as the “characteristic” of the boundary number) is explained in detail in paragraphs [0029]-[0037].

The Applicant respectfully requests that the Examiner withdraw the rejections under 35 U.S.C. § 112 with respect to all claims.

Rejection of Claims Under 35 U.S.C. § 101

The Examiner has rejected claims 1, 3-6, 13-18 and 37-48 as embodying an abstract idea and thus not being patentable subject matter. The amendments to independent claims 1, 13 and 25 resolve this issue. The Applicant respectfully requests that the Examiner withdraw the rejections to these claims under 35 U.S.C. § 101.

Rejection of Claims Under 35 U.S.C. § 103(a)

The Examiner has rejected the claims in view of at least Matsuda and Burrows. The Applicant respectfully contends that these references, when combined, do not teach or suggest the claimed invention.

The claimed invention is an advancement over the prior art at least because of its use of a term in a search query expression that is indicative of the integral portion (i.e., integer component) of a logarithm of the boundary number:

generating an expression of numerical index terms based on the boundary number, wherein a respective numerical index term **in the expression includes information indicative of an integral portion of a logarithm of the boundary number;**
(Claim 1).

Matsuda and Burrows do not separately, or when taken together, teach this technique. Specifically, Matsuda does not use logarithms at all. As the Examiner states on page 7 of the Final Office Action, “Matsuda does not explicitly teach the claimed limitation ‘wherein a respective numerical index term in the expression includes information indicative of an integral portion of a logarithm of the boundary number’.”

Burrows generates a search query expression that has a set of metawords to represent a number range. However, none of the Burrows metawords represent or are indicative of the logarithm, or the integral portion of the logarithm of a boundary number. Instead, the only use of logarithms in Burrows is to determine (A) the maximum number of metawords that may be needed to represent a number range in the search query expression, and (B) the number of “levels” of metawords (this is explained in more detail below). Each individual metaword in Burrows represents a specific, predefined range of number values (e.g., 56 to 63). The logical OR of all the metawords in the expression represents the number range in the search query. Since each metaword represents a predefined number range, Burrows does not use metawords that represent or are indicative of the logarithm, or the integral portion of the logarithm of a boundary number. For at least this reason, Burrows neither teaches nor suggests the above quoted limitation in the pending claims.

Examples and Further Explanation of Metawords in Burrows

The following is a more detailed explanation of how Burrows uses metawords to represent (A) a number in a document, and (B) a number range in a search query.

Burrows provides the following example (see FIG. 19, and col. 25, lines 43-52) to illustrate the use of metawords to represent a number in a document (called a “word” in Burrows). The value “62” in a document at “location” within the document is encoded as:

[location, 62_1], [location, 62_2], [location, 60_3], and [location, 56_4].

In each of these metawords, “location” is the location of the value in the document, the last number in the metaword indicates the “level” of the metaword, and the first number in the metaword indicates the beginning of the value range at the specified level. For example, the metaword [location, 56_4] is a level 4 metaword that represents the range 56 to 63 (see FIG. 19).

Burrows also provides an example (see FIG. 19, col. 25, line 61 to col. 26, line 4) of the use of metawords to represent the number-range “57-70” (i.e., 57 to 70) in a search query expression. In particular, the range “57-70” is represented in a search query expression as the following set of metawords:

57_1, 58_2, 60_3, 64_3, 68_2, 70_1.

The Boolean OR of these metawords represents the number range 57-70. In each of these metawords, the second value indicates the level of the metaword and the first value indicates the beginning of the value range at the specified level.

Thus, the range “57-70” is converted into a query expression by determining a list of metawords that exactly span the range of the search term. Note that no logarithm is taken of any number in the Burrows process of creating a search query expression.

As shown above, Burrows does not teach the use of a logarithm of a number either to represent a number in a document or to create a search query expression. Therefore, Burrows cannot teach or suggest:

generating an expression of numerical index terms based on the boundary number, wherein a respective numerical index term in the expression includes information indicative of an integral portion of *a logarithm of the boundary number*; (Claim 1, emphasis added).

For at least this reason, in light of the fact that Matsuda does not teach or suggest anything about logarithms, Matsuda and Burrows can not, taken together, teach or suggest the claimed limitation cited above.

Lewak and Beavin

It is also noted that Lewak (cited by the Examiner only with respect to claims 5, 17 and 29) does not teach a search query expression having a term that represents (or includes information indicative of) the integral portion (i.e., integer component) of a logarithm of a boundary number (which is one end of a number range in the search query). The same is true of Beavin (cited only with respect to claims 37, 39, 41, 43, 45 and 47).

For these reasons, Matsuda, Burrows, Lewak and Beavin do not as a whole teach or suggest the claimed invention. The Applicant respectfully requests that the Examiner withdraw the rejections under 35 U.S.C. § 103 with respect to all claims.

In light of the above amendments and remarks, the Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney at (650) 843-4000, if a telephone call could help resolve any remaining items.

Respectfully submitted,

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/ Gary S. Williams /

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Gary S. Williams

(Reg. No.)

MORGAN, LEWIS & BOCKIUS LLP

2 Palo Alto Square

3000 El Camino Real, Suite 700

Palo Alto, CA 94306

(650) 843-4000